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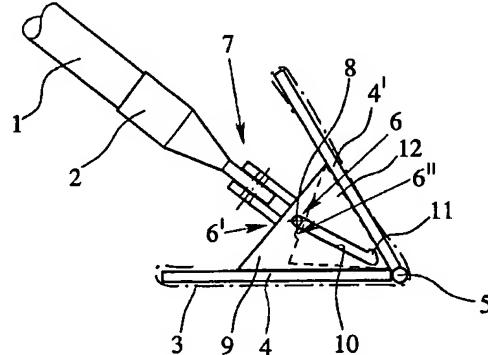
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(54) Title: MOP HOLDER FOR MOUNTING A MOP COVER



(57) Abstract: The invention relates to a mop holder for mounting a mop cover for mopping surfaces to be cleaned, comprising a handle (1) and a support with two alternately usable flat sides for supporting a removable mop cover (3), wherein the flat sides are formed on wings (4, 4') that are hinge-connected to each other along the lengthwise extension thereof, wherein the mop holder is open on one side between the wings (4, 4') for attachment of the handle (1). Further provided are detachable connecting means (6) between the wings (4, 4') fixedly connecting the wings (4, 4') in an operative position thereof, wherein the wings (4, 4') with the detachable connecting means (6) detached may freely swivel to a release position in which a mop cover (3) may freely fall from or may be easily removed from the wings (4, 4') and an articulated connecting means (7), connecting the handle (1) to the support, wherein the articulated connecting means (7) comprises a swiveling axis (8), which extends essentially in the middle between the wings (4, 4') at least in the operative position of the wings (4, 4') and essentially parallel to the hinge connection (5) of the wings (4, 4'). This mop holder is characterized in that the swiveling axis (8) is displaceably connected to the wings (4, 4') in a way that in the operative position of the wings (4, 4'), the swiveling axis (8) is in a first, preferably fixed position distant from the hinge connection (5) of the wings (4, 4'), and in the release position of the wings (4, 4'), the swiveling axis (8) is in a second position close to the hinge connection (5) of the wings (4, 4').

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### Mop Holder for Mounting a Mop Cover

The invention relates to a mop holder for mounting a mop cover comprising the features of the introductory part of claim 1.

5

Traditional mop holders for mounting a mop cover are comprising an elongated frame with two wings hinge-connected together either directly forming a single folding axis or indirectly through a hinge plate forming more than one folding axis and a handle holder hinge-connected to the wings and/or the hinge plate by means of a swiveling means. The handle holder comprises a universal joint and forms a socket for mounting a handle (US 4,881,290 A). However, it is likewise possible to directly mount the handle to the mop holder without a separate handle holder. Nevertheless, most common is a handle holder forming a socket for removably attaching a handle. This is the same for the invention, too.

10

15 In above-mentioned general prior art, the elongated frame is open and made from metal wire. A plate member on the upper side of each frame-like wing provides a wiping surface for cooperation with the mop cover in an operative, i.e. extended or straight position of the wings.

20

25 Detachable connecting means are fixedly holding the wings in their operative, here extended position. The connecting means here have the form of rollover lips cooperating with the elastically deformable frame parts of the wings. All in all the swiveling axes of the swiveling means here are oriented in the transversal direction of the mop holder so that insertion pockets on a corresponding mop cover are positioned on the transversal edges thereof. This is the traditional construction and orientation (see also DE 34 11 858 C2).

30

Another, more recently marketed mop holder (US 5,864,914 A) for mounting a mop cover comprises an elongated frame with two wings hinge-connected together indirectly through a hinge plate with folding axes oriented in the longitudinal direction of the mop holder. Accordingly, the mop cover has insertion pockets provided on longitudinal edges thereof for introducing longitudinal edge sections of the wings of the mop holder. Here are additional 35 detaching means for detaching the wings so that the wings are released into a foldaway release position. Those detaching means are provided by inclined

surfaces of projections and depressions interacting in such a way that manual pressure on the detaching means releases the wings.

5 In the above referenced prior art, the detachable connecting means are described as catch, clamping, Velcro (burr), or magnet means.

From a co-pending application of the applicant, filed simultaneously with the present application (PCT/EP 2004/...., attorney's reference 04.0082), a mopping device can be obtained where the flat sides of the mop holder in the operative 10 position thereof run at an acute to obtuse angle to one another and preferably with an articulated connecting means with a main swiveling axis fixedly positioned at a distance of approximately 20% to 80%, preferably about 40% of the width of the wings from the hinge connection of the wings. Reference is made to this parallel application, the content of which is hereby included as a 15 supplemental disclosure.

The handling of the mopping device when mopping a surface is improved if the articulated connecting means, which normally is a cardan joint between the handle holder and the support, allows for a maximum angle between the handle 20 and the mop holder. This allows operation of the mopping device under complicated circumstances, i.e. in edges, below desks or cupboards, around obstacles and fixed objects, etc. However, touch-free attachment and removal of the mop cover from the mop holder in the release position of the wings needs lifting of the mop holder essentially at the center of gravity of the mop holder, 25 i.e. close to the hinge connection of the wings.

The object of the present invention is to provide a construction of a mop holder with foldaway wings for ease of attachment and removal of a mop cover that fulfills both above-mentioned functions in the best possible way.

30 Above-mentioned object is solved by a mop holder for mounting a mop cover comprising the features of the generic part of claim 1 and additionally comprising the features of the characterizing part of claim 1.

35 Although the mop holder consists of two foldaway wings and the articulated connecting means in the operative position of the wings is close to the rear edge

of the mop holder or even outside the mop holder, the concept allows for at least approximately symmetrical folding down of the wings to the release position to remove and attach a mop cover. The solution lies in a swiveling axis of the articulated connecting means that is movable relative to the mop holder between 5 an operative position and a release position as explained in claim 1.

From the operative position of the wings in order to remove a mop cover from the mop holder, the wings are detached to allow falling of the wings towards their release position, the handle is pushed towards the hinge connection of the 10 wings with the swiveling axis moving towards the hinge connection into the second position. When the handle is lifted in this position, the wings fold away into their release position almost symmetrically. The mop cover simply falls down from the wings or, if attached to at least one wing by means of a Velcro connection, it can be released from this just by stepping on the partly released 15 mop cover and pulling the mop holder from the mop cover.

In order to attach a mop cover to the mop holder, the mop holder with the wings in the release position and the swiveling axis in the second position close to the hinge connection of the wings, is positioned on top of the mop cover and the 20 handle is moved downwardly towards the mop cover. The wings may then reach their operative position, where the detachable connecting means fixedly holds the wings in their operative position.

The operative position of the wings is a folded position with two sides of the 25 mop cover as e.g. in US 5,864,914 A or in the co-pending application (see above citation).

The release position of the wings is preferably a position with a specific maximum angle between the wings so that re-positioning on top of the mop 30 cover easily spreads the wings into an intermediate position with the longitudinal edges of the wings sliding into insertion pockets or below holding strips on the mop cover. Instead of using insertion pockets on the upper side of a mop cover as disclosed in US 5,864,914 A, at least in connection with a specific design of the wings, holding strips can be used instead of insertion pockets (WO 35 03/020100 A).

Now, further features, advantages and applications of the inventive concept can be obtained from the following detailed description of preferred embodiments of the invention as taken in conjunction with the accompanying drawings. In the drawings

5

Fig. 1 is a perspective view of a mop holder with a mop cover attached to the mop holder and foldaway wings that are in their operative position,

10

Fig. 2 is a schematic view of the mop holder of Fig. 1 with the wings in an extended, straight position, the swiveling axis in a first position,

15

Fig. 3 shows a schematic side view of the mop holder in the operative position of Fig. 1,

Fig. 4 shows, in a view similar to Fig. 3, the mop holder with the wings in their extended or straight position and the swiveling axis in the first position,

20

Fig. 5 shows, in a view similar to Fig. 3, the mop holder with the wings in their extended or straight position and the swiveling axis in the second position,

25

Fig. 6 shows, in a view similar to Fig. 3, the mop holder now lifted with the wings in the release position,

Fig. 7 is a second embodiment of a mop holder with a separate bracket between the wings, otherwise similar to Fig. 3,

30

Fig. 8 is a third embodiment of the invention in a view similar to Fig. 3, and

Fig. 9 is the embodiment of Fig. 8 in a view similar to Fig. 6.

35

The mop holder that can be seen in Fig. 1 of the drawings is intended for mounting a mop cover for mopping surfaces to be cleaned.

5 The mop holder in Fig. 1 and 2 comprises a handle 1 and a handle holder 2. The handle holder 2 is provided as a socket for the handle 1. In this way, the handle 1 can be removed or exchanged. Nevertheless, basically it is possible to use only the handle 1 without a separate handle holder 2.

10 The mop holder comprises further a support with two alternately usable, preferably oblong flat sides for supporting a removable mop cover 3. The mop cover 3 in Fig. 1 as attached to the mop holder, specifics of the mop cover 3 to be explained later. The handle holder 2 is only schematically shown in Fig. 1.

Fig. 2 shows the mop holder without the mop cover 3.

15 The flat sides of the support are formed on wings 4, 4' that are hinge-connected at 5 to each other along the lengthwise extension thereof. The support is open on one side between the wings 4, 4' for attachment of the handle 1 or handle holder 2, respectively.

20 A detachable connecting means 6, which will be explained in detail later, fixedly connects the wings 4, 4' in an operative position thereof, which is shown in Fig. 1, i.e. in the usage state of the mop holder as such. The wings 4, 4', with the detachable connecting means 6 detached, may freely swivel to an extended or straight position (as shown in Fig. 2) and further to an angled release position in which the mop cover 3 may freely fall from or may be easily removed from the wings 4, 4' (Fig. 6, Fig. 9).

25 Fig. 1 and Fig. 2 disclose that there is an articulated connecting means 7 connecting the handle holder 2 or, if only the handle 1 is present, the handle 1, with the support of the mop holder. This articulated connecting means 7 preferably and in the present embodiment is a universal or cardan joint with two swiveling axes extending transversally to each other. This is a preferred embodiment. However, as far as the invention is concerned, it is only important that the articulated connecting means 7 comprises a swiveling axis 8, which extends essentially in the middle between the wings 4, 4' at least in the operative position of the wings 4, 4' and essentially parallel to the hinge connection 5 of the wings 4, 4'. In the present embodiment, the swiveling axis 8 is mechanically

realized as a swiveling pin. Nevertheless, other mechanical forms of the swiveling axis 8 may be used as well.

5 In the prior art, the swiveling axis 8 of the articulated connecting means 7 is fixedly positioned on the mop holder. Now, in the inventive concept, the swiveling axis 8 is displaceably connected to the wings 4, 4' in a way that in the operative position of the wings 4, 4', the swiveling axis 8 is in a first, preferably fixed position distant from the hinge connection 5 of the wings 4, 4' and in the release position of the wings 4, 4', the swiveling axis 8 is in a second position 10 close to the hinge connection 5 of the wings 4, 4'. The two positions can be seen particularly clearly in Fig. 3 on the one hand and in Fig. 6 on the other hand.

15 The operative position in Fig. 3 means that the articulated connecting means 7 is position near the rear opening between the wings 4, 4'. From this position, however, it is not easy to fold away the wings 4, 4' to release the mop cover 3 or to attach a new mop cover 3. Therefore, in Fig. 4, 5 in the extended position of the wings 4, 4', the swiveling axis 8 may be moved towards the hinge connection 5 into the second position. With the swiveling axis 8 of the articulated connecting means 7 in this second position, lifting of the handle 1 results in 20 lifting of the mop holder with the wings 4, 4' lifted close to their hinge connection 5 so that both wings 4, 4' will be in an almost symmetrical release position.

25 Fig. 1 to 6 relate to a first embodiment of the invention.

30 In the first embodiment of the invention, there is provided at least one bracket 9 between the wings 4, 4', the bracket 9 is provided with an oblong hole or channel 10 extending essentially transversally to the hinge connection 5, the swiveling axis 8 is formed by a swiveling pin running in the channel 10, wherein the first fixed position is defined by the end of the channel 10 distant from the hinge connection 5, whereas the second position is defined by the end of the channel 10 close to the hinge connection 5. According to a preferred feature of this embodiment that can be seen in the drawings, the channel 10 has an extension or 35 pocket 11 at its end that is close to the hinge connection 5 so that the swiveling pin forming the swiveling axis 8 has a mechanically defined second position within the pocket 11. Fig. 6 shows that the pocket 11 defines a specific position

for the swiveling axis 8 at this end of the channel 10 so that the swiveling axis 8 is safely held in the second position and easy removal and attachment of the mop cover 3 is guaranteed.

5 The embodiment of Figs. 1 to 6 shows a specific construction in that the bracket 9 is fixedly connected to one of the wings 4, 4'. This is a construction that corresponds to the co-pending PCT-application mentioned above (see above citation). However, as far as the invention is concerned, it is also possible that 10 the bracket 9 is provided as a separate part between the wings 4, 4' and itself is hinge-connected to the wings 4, 4'. This can be obtained from Fig. 7 and is a construction that is more like the prior art mentioned in the introductory part of the description. With the bracket 9 being a separate part, the hinge connection 5 is formed here by two folding axes 5', 5" on the bracket 9 for connection with the wings 4, 4'.

15 Fig. 1 and 2 show a construction where it is provided that two similar or identical brackets 9, 9' are provided on both sides of the articulated connecting means 7. Here, the articulated connecting means 7 with the swiveling axis 8 is positioned between the two brackets 9, 9'. The swiveling axis 8 is formed by a swiveling pin 20 extending into the channels 10 in both brackets 9, 9'.

25 However, it is equally possible to construct with a larger number of brackets or the other way around with the articulated connecting means 7 having the form of a yoke with at least two arms with the bracket in between or a number of arms with a number of brackets in between. The swiveling axis may be formed by a swivel bearing if the swiveling pin is assigned to the brackets and the bearing is assigned to the articulated connecting means 7.

30 The general idea of the invention needs only a first position and a second position of the swiveling axis 8. However, it has already been explained that the first position should preferably be a fixed position in the operative position of the wings 4, 4', because this allows swift and easy mopping with this mop holder.

35 To realize the fixing of the swiveling axis 8 in the first position in the embodiment of Figs. 1 to 7, a blocking means 12 is positioned between the wings 4, 4' and fixedly holds the swiveling axis 8 in the first position, when the wings

4, 4' are in their operative position. In the embodiment of Figs. 1 to 6, the blocking means 12 is fixedly connected to the second wing 4', while the brackets 9, 9' are fixedly connected to the first wing 4. By folding the wing 4' into the operative position of the wings 4, 4', not only the detachable connecting means 6 are activated to connect the wings 4, 4', but also the blocking means 12 is brought into its blocking position below the swiveling axis 8. In the present embodiment, although the channels 10 in the brackets 9, 9' would allow the swiveling axis 8 to be moved towards the hinge connection 5, the blocking means 12 blocks this generally possible movement in this position of the wings 4, 4'.

In the embodiment of Fig. 7, the bracket 9 is a separate part. Here, each of the wings 4, 4' may have a blocking means 12 (although only wing 4' actually has one). Which of the wings 4, 4' is connected with the bracket 9 is irrelevant here, because each of the wings can block the swiveling axis 8.

The embodiment of Fig. 8 and 9 is different from the embodiments of Figs. 1 to 7 because here the swiveling axis 8 is connected to each of the wings 4; 4' by means of a linkage arm 13, which is hinge-connected to the corresponding wing 4; 4' between its center of gravity and the hinge connection 5 of the wings 4, 4'.

Fig. 8 shows the operative position of the wings 4, 4' with the detachable connecting means 6 connecting the wings 4, 4'. By means of the linkage arm 13, a kind of lozenge-form is realized. The swiveling axis 8 automatically lies close to the open side of the wings 4, 4'.

Fig. 9 shows the release position of the wings 4, 4' in this embodiment of the invention. By detaching the connecting means 6, which are here a magnet 6' and a metallic counter-element 6", and lifting the handle 1, the wings 4, 4' fold downwardly, under their own weight and the weight of a mop cover 3 attached to the wings 4, 4'. In order to achieve this, it is important that the linkage arms 13 are hinge-connected to the wings 4, 4' between the respective center of gravity and the hinge connection 5 of the wings 4, 4'.

Fig. 9 shows this construction automatically realizing the maximum release angle between the wings 4, 4'. Fig. 9 shows that in the release position of the

wings 4, 4', the swiveling axis 8 is very close to the hinge connection 5 of the wings 4, 4'.

Up to now, the detachable connecting means 6 has been mentioned only as such. 5 Of course, the existence of such detachable connecting means 6 is necessary, but the detailed construction can vary. In the embodiment of Fig. 8, 9, a magnet part 6' and a metallic counter-part 6" on the wings 4, 4' were already mentioned. The embodiment of Figs. 1 to 6 shows a mechanical snap-in device, which is formed by the lower end of the handle holder 6' and a snap-in groove 6" on the blocking 10 means 12. The blocking means 12, thus, has a double function for blocking the swiveling axis 8 in the first position thereof and for connecting the wings 4, 4' in their operative position.

Another embodiment of the detachable connecting means 6 could show magnetic 15 means between the bracket 9 and the wing 4' not bearing the bracket 9.

In the present embodiment it is provided that most parts of the mop holder are made from plastics.

20 In the embodiment of Fig. 1, it is provided that the hinge connection 5 is realized directly between the wings 4, 4' by means of a swivel pin or swiveling pins in corresponding bearings. The hinge connection 5 of the embodiment in Fig. 7 shows two folding axes 5', 5" of similar construction. However, in particular if most parts of the mop holder are made from plastics, the hinge connection 5 may 25 be provided by means of a living hinge of plastics preferably directly between the wings 4, 4'.

The embodiment of Fig. 7 shows the bracket 9 with two folding axes 5', 5" and the articulated connecting means 7 between the wings 4, 4'. The wings may even 30 form the flat sides of the support for the mop cover 3 essentially parallel to each other. This may be similar to the prior art of US 5,864,914 A.

In all embodiments discussed here, however, the wings 4, 4' run at an acute to 35 obtuse angle to one another in the operative position thereof. Here, an overall V-shape is realized, whereas other shapes may be realized as well like U-shape, Y-shape, or the like.

Once more, reference is made to the co-pending PCT application (see citation above), which is mentioned here as supplemental disclosure for the present application as well. From the parallel PCT application, it may be obtained, e.g. 5 that a cavity may be formed by the wings 4, 4' of the mop holder to receive or transport cleaning liquid, that a replaceable mop cover may be combined with a non-replaceable mop cover or a mop cover implemented as a permanent trimming of the wings 4, 4'.

10 Moreover, it has already been explained that the technical means to attach the mop cover 3 to the mop holder may include insertion pockets as in US 5,864,914 A as well as holding strips as in WO 03/020100 A or even Velcro connections. Fig. 1 indicates those holding strips 14 cooperating with position-fixing means 15 on the wings 4, 4' when the mop cover 3 is attached to the mop holder. For 15 reference, please see WO 03/020100 A for details.

**Claims:**

1. Mop holder for mounting a mop cover for mopping surfaces to be cleaned, comprising  
5 a handle (1) and/or a handle holder (2),  
a support with two alternately usable, preferably oblong flat sides for supporting a removable mop cover (3),  
wherein the flat sides are formed on wings (4, 4') that are hinge-connected to each other along the lengthwise extension thereof,  
10 wherein the mop holder is open on one side between the wings (4, 4') for attachment of the handle holder (2) or handle (1),  
a detachable connecting means (6) between the wings (4, 4') fixedly connecting the wings (4, 4') in an operative position thereof, i.e. in a usage state of the mop holder,  
15 wherein the wings (4, 4') with the detachable connecting means (6) detached may freely swivel to a release position in which a mop cover (3) may freely fall from or may be easily removed from the wings (4, 4'),  
an articulated connecting means (7), preferably a universal or cardan joint, connecting the handle holder (2) or the handle (1) to the support,  
20 wherein the articulated connecting means (7) comprises a swiveling axis (8), which extends essentially in the middle between the wings (4, 4') at least in the operative position of the wings (4, 4') and essentially parallel to the hinge connection (5) of the wings (4, 4'),  
characterized in that  
25 the swiveling axis (8) is displaceably connected to the wings (4, 4') in a way that  
in the operative position of the wings (4, 4'), the swiveling axis (8) is in a first, preferably fixed position distant from the hinge connection (5) of the wings (4, 4') and  
30 in the release position of the wings (4, 4'), the swiveling axis (8) is in a second position close to the hinge connection (5) of the wings (4, 4').
2. Mop holder according to claim 1, characterized in that  
there is provided at least one bracket (9) between the wings (4, 4'),  
35 the bracket (9) is provided with an oblong hole or channel (10) extending essentially transversally to the hinge connection (5),

the swiveling axis (8) is formed by a swiveling pin running in the channel (10),

5 wherein the first fixed position is defined by the end of the channel (10) distant from the hinge connection (5), whereas the second position is defined by the end of the channel (10) close to the hinge connection (5).

3. Mop holder according to claim 2, characterized in that  
10 the channel (10) has an extension or pocket (11) at its end that is close to the hinge connection (5) so that the swiveling pin forming the swiveling axis (8) has a mechanically-defined second position within the pocket (11).
4. Mop holder according to claim 2 or 3, characterized in that  
the bracket (9) is fixedly connected to one of the wings (4, 4').
- 15 5. Mop holder according to claim 2 or 3, characterized in that  
the bracket (9) is provided as a separate part between the wings (4, 4') and itself is hinge-connected to the wings (4, 4').
6. Mop holder according to any one of claims 2 to 5, characterized in that  
20 two similar or identical brackets (9, 9') are provided on both sides of the articulated connecting means (7) or the articulated connecting means has the form of a yoke with a single bracket between the arms of the yoke.
7. Mop holder according to any one of the preceding claims, characterized in  
25 that  
a blocking means (12) is positioned between the wings (4, 4') and fixedly holds the swiveling axis (8) in the first position, when the wings (4, 4') are in their operative position.
- 30 8. Mop holder according to claim 7, characterized in that  
the blocking means (12) is fixedly connected to one of the wings (4, 4') and, if the bracket (9) is fixedly connected to one of the wings (4, 4'), the blocking means (12) is fixedly connected to the other of the wings (4, 4').

9. Mop holder according to claim 1, characterized in that  
the swiveling axis (8) is connected to each of the wings (4; 4') by means of  
a linkage arm (13), which is hinge-connected to the corresponding wing (4;  
5 4') between its center of gravity and the hinge connection (5) of the wings  
(4, 4').
10. Mop holder according to any one of the preceding claims, characterized in  
that  
10 the detachable connecting means (6) comprises at least one mechanical  
snap-in device (6', 6'') or, preferably, a magnetic device with a magnet part  
and a metallic counterpart.
11. Mop holder according to claim 10, characterized in that  
15 the detachable connecting means (6) is provided between the bracket (9),  
the articulated connecting means (7), and the blocking means (12) or  
between the bracket (9) and the other one of the wings (4, 4').
12. Mop holder according to any one of the preceding claims, characterized in  
20 that  
all or most parts of the mop holder are made from plastics.
13. Mop holder according to any one of the preceding claims, characterized in  
that  
25 the hinge connection (5) is provided, preferably directly between the wings  
(4, 4'), by means of a swivel pin or swiveling pins in corresponding  
bearings.
14. Mop holder according to any one of claims 1 to 12, in particular claims,  
30 characterized in that  
the hinge connection (5) is provided, preferably directly between the wings  
(4, 4'), by means of a living hinge of plastics.

15. Mop holder according to any one of the preceding claims, characterized in that  
the two alternately usable flat sides in the operative position of the wings  
5 are oriented essentially parallel to each other.
16. Mop holder according to any one of claims 1 to 14, characterized in that  
the two alternately usable flat sides of the wings (4, 4'), in the operative  
position of the wings (4, 4'), are oriented at an acute to obtuse angle to one  
10 another.
17. Mop holder according to claim 16, characterized in that  
the wings (4, 4') in the operative position thereof run essentially U-shaped,  
V-shaped, or Y-shaped to one another.

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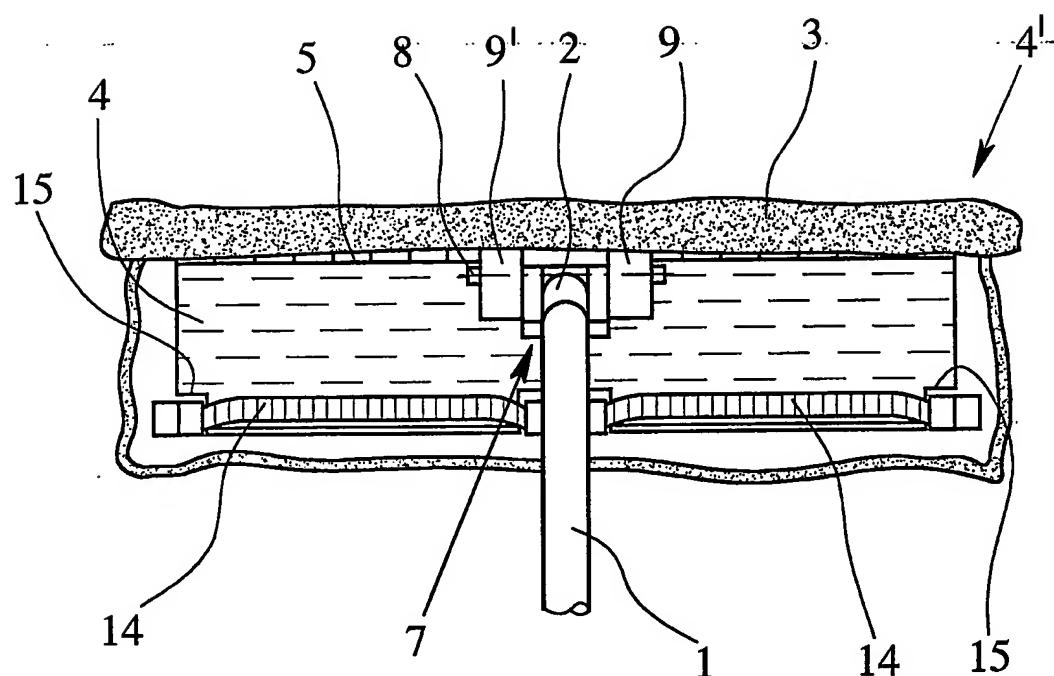


Fig. 1

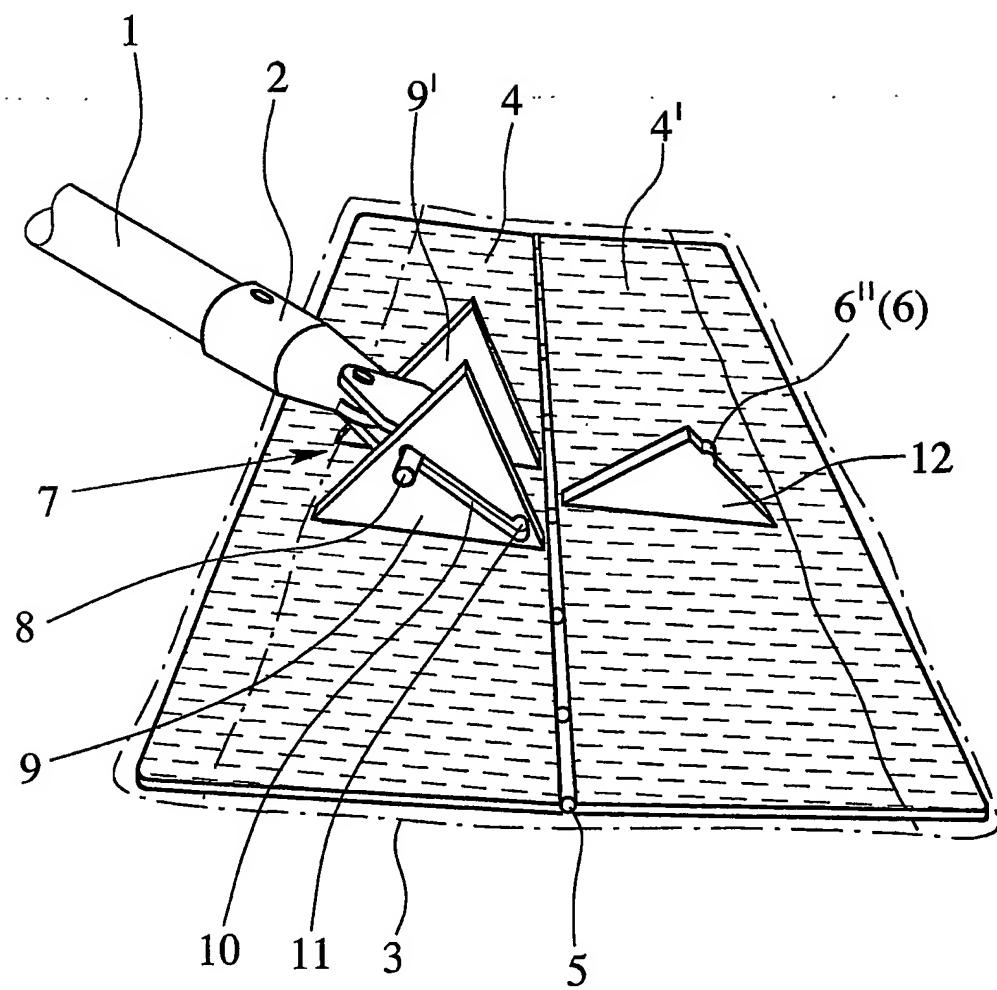


Fig. 2

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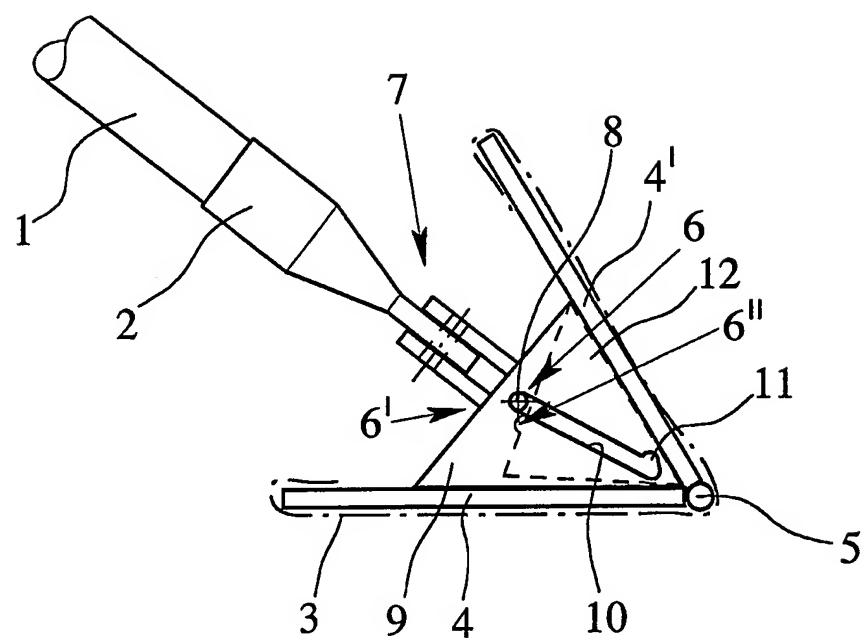


Fig. 3

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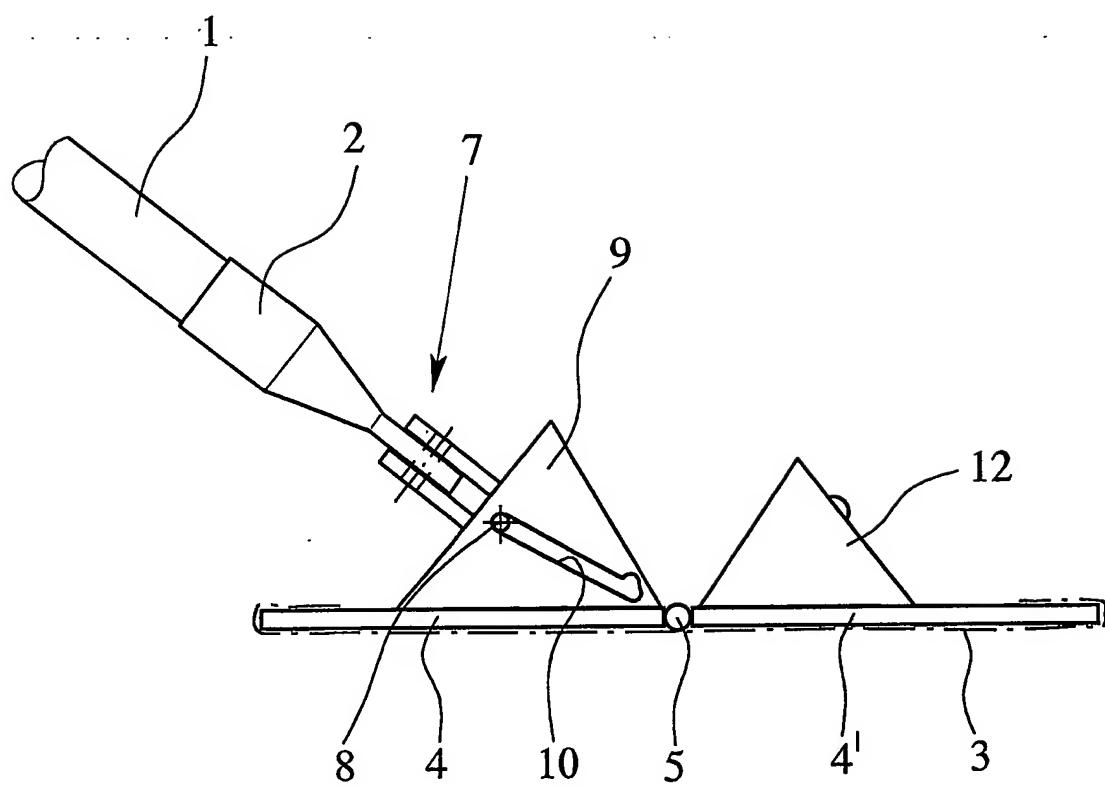


Fig. 4

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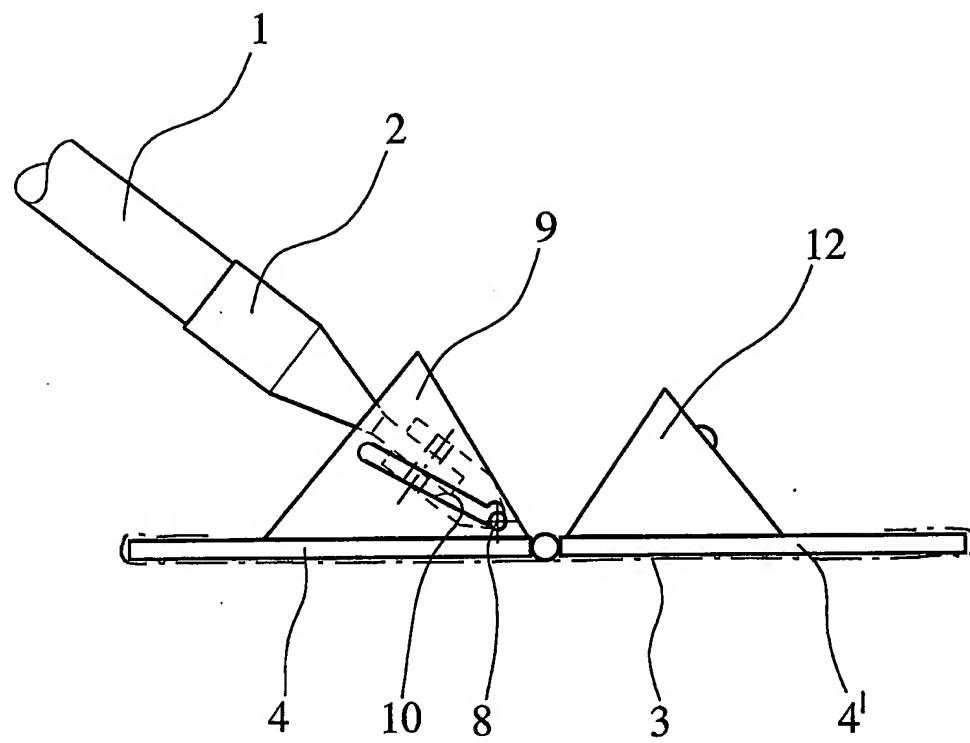


Fig. 5

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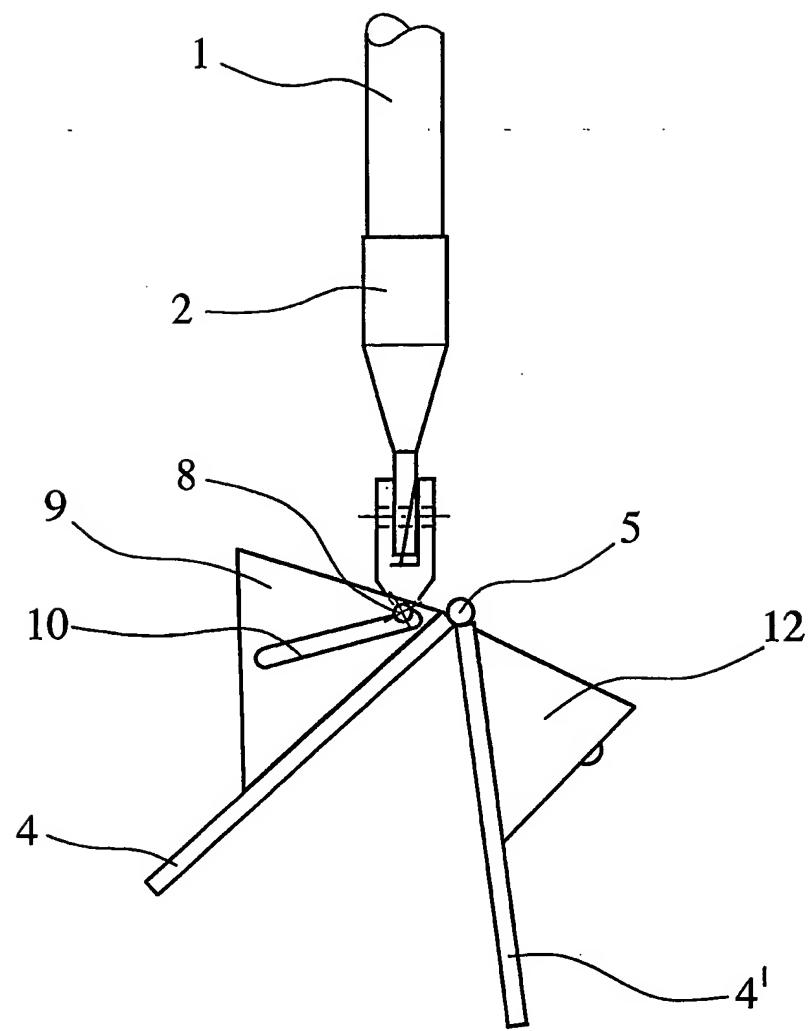


Fig. 6

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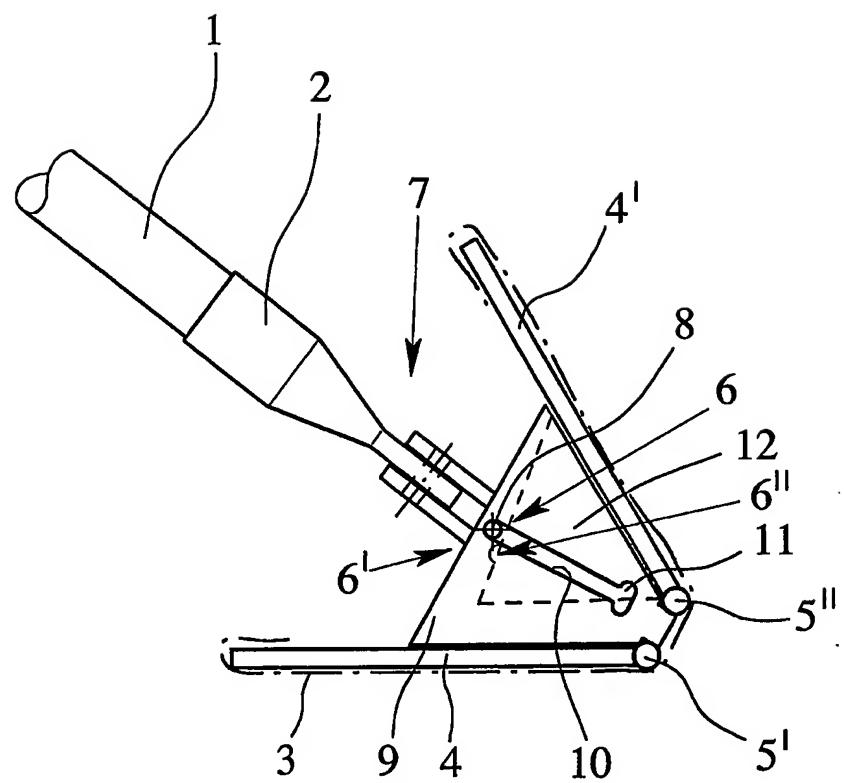


Fig. 7

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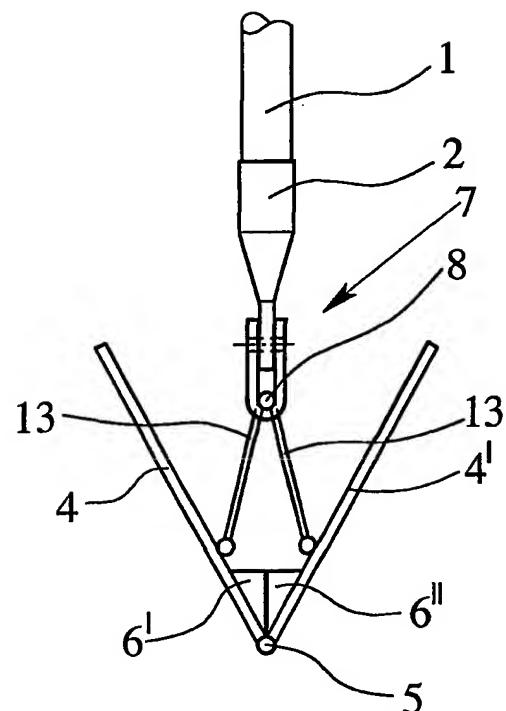


Fig. 8

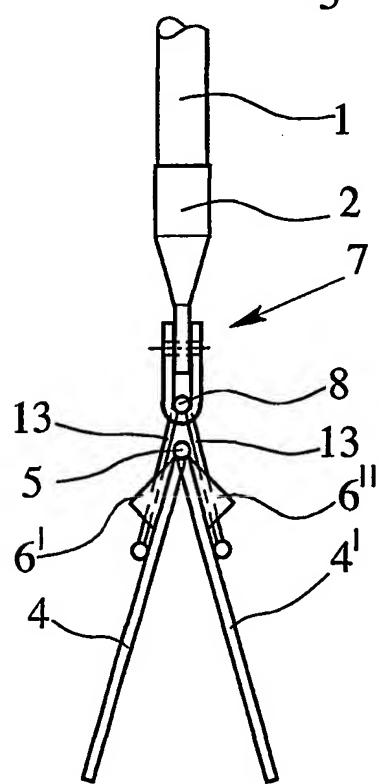


Fig. 9

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/EP2004/007011

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 A47L13/258

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 A47L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 864 914 A (SALMON, D. ET AL) 2 February 1999 (1999-02-02) cited in the application abstract column 4, line 29 – line 39 column 4, line 55 – column 5, line 5 figures 1-3d, 9, 10	1
A	WO 03/039321 A (UNI-CHARM CORPORATION ET AL) 15 May 2003 (2003-05-15) abstract figures	1
A	DE 296 05 019 U1 (FUERSTENBERG, FRIEDHELM, 22111 HAMBURG, DE) 23 May 1996 (1996-05-23) claim 1 figures	1
-/-		

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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Date of the actual completion of the International search

23 February 2005

Date of mailing of the International search report

04/03/2005

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International Application No  
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PATENT ABSTRACTS OF JAPAN vol. 1998, no. 06, 30 April 1998 (1998-04-30) -& JP 10 043113 A (KUBOTA CORP), 17 February 1998 (1998-02-17) abstract figures -----	1
A	US 4 881 290 A (BOHACEK, J.) 21 November 1989 (1989-11-21) cited in the application abstract figure 1 -----	1
A	DE 34 11 858 A1 (HENKEL KGAA) 1 August 1985 (1985-08-01) cited in the application abstract figure 1 -----	1
A	WO 03/020100 A (ECOLAB GMBH & CO. OHG ET AL) 13 March 2003 (2003-03-13) cited in the application abstract figure 3 -----	

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Information on patent family members

International Application No  
PCT/EP2004/007011

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